

H-Series Meters and Non-glass Probes



H-Series meters and non-glass probes include portable and benchtop options for measuring pH, conductivity, DO, and ORP in difficult environments.

Features and Benefits

Designed to Last

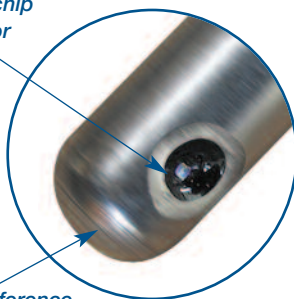
Hach's H-Series meters feature dual-technology capabilities for taking readings from ISFET (Ion-Sensitive Field Effect Transistor) and glass pH probes. ISFET stainless steel probes in this electrochemistry line contain a virtually unbreakable sensor that provides superior performance to traditional delicate glass electrodes. Engineered to withstand harsh use in the most difficult applications, the H-Series meters and probes give years of reliable service.

ISFET Technology

ISFET sensor technology contains several proprietary layers deposited selectively on a silicon chip substrate. The final layer possesses an affinity for hydrogen ions only. The quantity of hydrogen ions at or near the sensor surface causes an electrical effect that is detected and measured as pH.

*Fast response
silicon chip
sensor*

*Built-in reference
and medical grade
temperature sensor*



Easy Storage and Maintenance

Unlike conventional electrodes, ISFET-style sensors store dry, eliminating the need for storage solutions. To clean the sensor, simply use a toothbrush and detergent. Compare this to traditional glass electrodes with hard-to-reach crevices for difficult cleaning and an additional sample preparation step. After use, just replace the protective sensor cap.

Operates in Restrictive and Challenging Environments

With both benchtop and portable options, the H-Series addresses lab and field needs. All meters compensate for temperature automatically in pH readings. Non-glass pH probes offer convenience and ruggedness, excelling in applications such as food and beverage, academic teaching labs, environmental studies, agriculture, and petrochemical. Probe options include standard, micro and piercing versions to allow easy insertion and cleaning.

Portable Meters

Rugged portable meter systems provide a large LCD display with LED backlight and measurement of pH (ISFET or glass), mV, temperature, conductivity, Total Dissolved Solids (TDS), salinity and Oxidation Reduction Potential (ORP). They also offer a waterproof enclosure with an IP67 rating. G-version models include the added features of Bluetooth® wireless remote control and data transfer, GLP-related features such as date and time stamping, calibration recall, password-protected set up, ISE capability and additional data point storage. See the specifications table for additional information.

Benchtop Meters

Laboratory benchtop models feature AC and/or battery operation, ergonomic design and measurement of pH (ISFET or glass), mV, temperature, Oxidation Reduction Potential (ORP), Ion-Selective Electrode (ISE), conductivity, TDS, salinity and dissolved oxygen. All benchtops include GLP-related features, a reference electrode input, an IP42 rating, with optional Bluetooth models also available.

*DW = drinking water WW = wastewater municipal PW = pure water / power
IW = industrial water E = environmental C = collections FB = food and beverage*



Be Right™

IW

E

FB

Probe Styles

Both the portable and benchtop models accept the same probes. However, the points of connection differ between the meters. Portable meters use a waterproof 8-pin ISFET connector while benchtops use an RJ-45 connector. A “W” in the model and product number, specific for ISFET pH probes, indicates a waterproof connector for use with the portable meters.

ISFET pH

- **General Purpose Probe**

Good for most applications, particularly as a replacement for traditional glass electrodes in general lab, environmental, teaching labs, and applications needing rugged probes.

- **Micro Probe**

The best option for test tubes, flasks, or when measuring a small sample size (e.g. Petri dish), or applications requiring a longer-reaching probe. Compatible with TRIS buffers.

- **Piercing Tip Probe**

Ideal for piercing applications such as fish, chicken and turkey meat. Works well in dough and soft cheese, fruits and vegetables.

- **NMR Tube Probe**

This extra-long micro probe reaches the bottom of standard 5mm NMR tubes used in some industries. Useful in applications requiring a longer reach than that provided by standard micro probes.

- **Heavy-duty Piercing Probe**

Frequently used in cheese making, and the beef and pork industry to measure pH in loins and sides. The heavy-duty handle makes piercing into tough muscle tissue much easier. The sensor is recessed slightly into the probe body to prevent damage from piercing.

Conductivity

- **General Purpose Probe**

Used for general purpose applications. It features a 4-cell, bull's-eye design with temperature compensation, an epoxy body, and a waterproof connector.

- **Fresh/Drinking Water Probe**

Specific for Low-Ionic Strength (LIS) applications. Contains a 4-cell design with temperature compensation, glass body to insure precise measurement, and a waterproof connector.

- **Salt/Brackish Water Probe**

Specific for high salt content applications such as re-use waters, estuaries and aquaculture. It features a 4-cell design with temperature compensation, an epoxy body, and a waterproof connector.

Dissolved Oxygen (DO)

- **Dissolved Oxygen Probe**

A standard galvanic Dissolved Oxygen electrode with simple screw cap replacement membranes and electrolyte replenishment.

Oxidation Reduction Potential (ORP)/Redox Probe

- **Standard ORP Probe**

Features an annular ring design with BNC connector.



Portable Meters Specifications*

Power

4-AA batteries

Battery Life

Up to 200 hours continuous
10 hour advance low battery warning

Languages

English

Display

LCD with LED backlight
Simultaneous pH and Temperature

IP Rating

IP67

Data Memory

999 data points (H160G and H170G only)

Data Storage

GLP-related features (H160G and H170G only)
Calibration details (last 10) via SmartLogger II
(H160G and H170G only)
Logging capabilities from (1 to 1999 second intervals)
Automatic in store mode. User enabled in datalogging mode.
Data is user stored, recalled and deleted.

Calibration

Up to five point (for pH, conductivity, and ISE)

Buffer Recognition

User selectable: 1.68, 4.01, 6.86, 7.00, 9.18, 10.01, 12.45

Temperature Compensation

Off, automatic, and manual (parameter dependent)

ISE

Range: 0.0 ppm to 1999 ppt (Auto ranging)
Resolution: 0.1 ppm; 0.1 ppt

Warranty

3 years

Dimensions

9 x 20 x 5 cm (3.5 W x 7.9 H x 2.0 D in)

Weight

450 g (1.2 lbs) – meter only

Portable Meters Points of Difference

	H160	H160G	H170	H170G
Data Point Storage (sets)		999		999
Calibration				Up to 5 points
Inputs	BNC (1), 3.5mm phone (1), 8-pin waterproof ISFET pH (1)	BNC (1), 3.5mm phone (1), 8-pin waterproof ISFET pH (1)	BNC (1), 3.5mm phone (1), 8-pin waterproof ISFET pH (1) 12-pin waterproof conductivity (1)	BNC (1), 3.5mm phone (1), 8-pin waterproof ISFET pH (1) 12-pin waterproof conductivity (1)
Outputs		Bluetooth		Bluetooth
GLP		■		■
PC Data Transfer Software		Included		Included
Probe Options				
pH				
Non-Glass (ISFET)	■	■	■	■
Traditional Glass	■	■	■	■
Conductivity, TDS, Salinity			■	■
Oxidation Reduction Potential (ORP)	■	■	■	■
Ammonia		■		■
Nitrate		■		■
Fluoride		■		■
Sodium		■		■

Bluetooth available in US, Canada, Europe, and Taiwan only.

*Specifications subject to change without notice.

Benchtop Meters Specifications*

Power

4-AA batteries and/or A/C Adaptor (included)

Battery Life

Up to 200 hours continuous
10 hour advance low battery warning

Languages

English

Display

LCD with LED backlight
Simultaneous pH and Temperature

IP Rating

IP42

Data Memory

999 data points

Data Storage

GLP-related features
Calibration details (last 10) via SmartLogger II
Logging capabilities from (1 to 1999 second intervals)
Automatic in store mode. User enabled in datalogging mode.
Data is user stored, recalled and deleted.

Calibration

Up to five point (for pH, conductivity, and ISE)

Buffer Recognition

User selectable: 1.68, 4.01, 6.86, 7.00, 9.18, 10.01, 12.45

Temperature Compensation

Off, automatic, and manual (parameter dependent)

ISE

Range: 0.0 ppm to 1999 ppt (Auto ranging)
Resolution: 0.1 ppm; 0.1 ppt
Accuracy: Probe dependent

Warranty

3 years

Dimensions

20 x 13 x 8 cm (8 L x 5 W x 3 H in)

Weight

373 g (1.0 lbs) -meter only

Benchtop Meters Points of Difference

	H260G	H260GB	H270G	H270GB	H280G	H280GB
Data Point Storage (sets)	999	999	999	999	999	999
Inputs	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1)	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1)	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1) 12-pin waterproof conductivity (1)	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1) 12-pin waterproof conductivity (1)	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1) 12-pin waterproof conductivity (1)	BNC (1), 3.5 mm phono (1), 4mm reference (1), 8-pin RJ-45 ISFET pH (1) 12-pin waterproof conductivity (1)
Outputs	USB	USB & Bluetooth	USB	USB & Bluetooth	USB	USB & Bluetooth
GLP	■	■	■	■	■	■
PC Data Transfer Software	Included	Included	Included	Included	Included	Included
Probe Options						
pH						
Non-Glass (ISFET)	■	■	■	■	■	■
Traditional Glass	■	■	■	■	■	■
Oxidation Reduction Potential (ORP)	■	■	■	■	■	■
Conductivity, TDS, Salinity			■	■	■	■
DO					■	■
Ammonia	■	■	■	■	■	■
Nitrate	■	■	■	■	■	■
Fluoride	■	■	■	■	■	■
Sodium	■	■	■	■	■	■

Bluetooth available in US, Canada, Europe, and Taiwan only.

*Specifications subject to change without notice.

Probes Specifications*

Temperature

Range

-5 to 105°C (23 to 221°F) Display °C or °F

Resolution

0.1°C

Accuracy

±0.5°C

mV

Range

±1999 mV

Resolution

0.1 or 1 mV

Accuracy

±1 mV

pH

Range

0.00 to 14.00 pH

Resolution

0.1 or 0.01 pH

Temperature Range

Continuous Use: 0 to 60°C (0 to 140°F)

Dimensions

PH77-SS / PHW77-SS: 140 mm x 8.3 mm (5.51 x 0.33 in)
 PH17-SS / PHW17-SS: 130 mm x 4.8 mm and 80 mm x 8.3 mm
 (5.12 x 0.18 and 3.15 x 0.33 in)
 PH37-SS / PHW37-SS: 90 mm x 4.8 mm and 80 mm x 8.3mm
 (3.54 x 0.19 and 3.15 x 0.33 in)
 PH47-SS / PHW47-SS: 220 mm x 3.8 mm and 80 mm x 8.3 mm
 (8.66 x 0.15 and 3.15 x 0.33 in)
 PH57-SS / PHW57-SS: 90 mm x 4.8 mm (3.54 x 0.19 in)

Barometric Pressure

Range

225-900 mm Hg or 300-1200 hPa

Resolution

1 mm Hg or 1 hPa

Conductivity

Optimum Range

CDW97-KP5: 5 µS/cm to 1 mS/cm (Auto ranging)
 CDW97-K1: 10 µS/cm to 2 mS/cm (Auto ranging)
 CDW97-K10: 1 mS/cm to 200 mS/cm (Auto ranging)

Resolution

0.00 to 19.99 µS/cm: 0.01 µ/cm
 20.0 to 199.9 µS/cm: 0.1 µS/cm
 200 to 1999 µS/cm: 1 µS/cm
 2.00 to 19.99 mS/cm: 0.01 mS/cm
 20.0 to 199.9 mS/cm: 0.1 mS/cm
 200 mS/cm: 1 mS/cm

Accuracy

±1% full scale or ±1 digit

Dissolved Oxygen (DO) Standard Galvanic

Range

0.0% to 199.9%

Saturation

0 to 19.99 ppm or mg/L

Barometric Pressure Compensation

Automatic

Resolution

0.1%; 0.01 ppm or mg/L

Accuracy

±1.5% full scale

Salinity

Optimum Range

CDW97-KP5: 2 ppm to 400 ppm (Auto ranging)
 CDW97-K1: 4 ppm to 800 ppm (Auto ranging)
 CDW97-K10: 400 ppm to 80 ppt (Auto ranging)

Resolution

0.001 ppt to 1 ppt

Accuracy

±0.1 ppt (-2 to 35°C)

Total Dissolved Solids (TDS)

Optimum Range

CDW97-KP5: 3.3 ppm to 660 ppm (Auto ranging)
 CDW97-K1: 6.6 ppm to 1,320 ppm (Auto ranging)
 CDW97-K10: 660 ppm to 132 ppt (Auto ranging)

Resolution

0.00 to 199.9 ppm: 0.1 ppm
 200 to 1999 ppm: 1 ppm
 2.00 to 19.99 ppt: 0.01 ppt
 20.0 to 132 ppt: 0.1 ppt

Accuracy

±1% full scale or ±1 digit

Ordering Information

Portable Meters

H160NP	Waterproof Portable Dual pH Meter (ISFET and glass) for pH/mV measurement
H160-BNDL	H160 Meter (above) with PHW77-SS non-glass pH probe, holster, carrying case, buffers and standardizing solutions
H160GNP	GLP Waterproof Portable Dual pH Meter (ISFET and glass) with Bluetooth connectivity, pH/mV measurement, and ISE capability
H160G-BNDL	H160G Meter (above) with PHW77-SS non-glass pH probe, holster, carrying case, buffers and standardizing solutions
H170NP	Waterproof Portable Dual pH Meter (ISFET and glass) for pH/mV measurement and capability of measuring conductivity, TDS and salinity
H170-BNDL	H170 Meter (above) with PHW77-SS non-glass pH probe and CDW97-KP5 conductivity probe, holster, carrying case, buffers and standardizing solutions
H170GNP	GLP Waterproof Portable Dual pH Meter (ISFET and glass) with Bluetooth connectivity, pH/mV measurement and capability of measuring conductivity, TDS, salinity and ISE
H170G-BNDL	H170G Meter (above) with PHW77-SS non-glass pH probe and CDW97-KP5 conductivity probe, holster, carrying case, buffers and standardizing solutions

Benchtop Meters

H260GNP	Benchtop Dual pH/mV and ISE Meter
H260G-BNDL	H260G Meter (above) with PH77-SS non-glass pH probe, standard solutions and buffers
H260GBNP	Benchtop Dual pH/mV and ISE Meter with Bluetooth connectivity
H260GB-BNDL	H260GB Meter (above) with PH77-SS non-glass pH probe, standard solutions and buffers
H270GNP	Benchtop Dual pH/mV and ISE Meter for pH testing and conductivity with TDS and salinity capabilities
H270G-BNDL	H270G Meter (above) with PH77-SS non-glass pH probe and CDW97-KP5 conductivity probe, standard solutions and buffers
H270GBNP	Benchtop Dual pH/mV and ISE Meter for pH testing and conductivity with TDS and salinity capabilities and Bluetooth connectivity
H270GB-BNDL	H270GB Meter (above) with PH77-SS non-glass pH probe, CDW97-KP5 conductivity probe, standard solutions and buffers
H280GNP	Benchtop Multi-parameter Meter for pH/mV, conductivity, TDS, salinity, DO, barometric pressure, and ISE capability
H280G-BNDL	H280G meter (above) with PH77-SS non-glass pH probe, CDW97-KP5 conductivity probe, DO50-GS dissolved oxygen probe, standard solutions and buffers
H280GBNP	Benchtop Multi-parameter Meter for pH/mV, conductivity, TDS, salinity, DO, barometric pressure, ISE capability and Bluetooth connectivity
H280GB-BNDL	H280GB meter (above) with PH77-SS non-glass pH probe, CDW97-KP5 conductivity probe, DO50-GS dissolved oxygen probe, standard solutions and buffers




Ordering Information *continued*

pH Probes (Stainless Steel with Non-glass ISFET Sensors)

A "W" in the model and part number indicates a waterproof probe for use with the portable meters.

PH77-SS	General Purpose pH Probe	
PHW77-SS	General Purpose pH Probe Waterproof Version	
PH17-SS	Micro pH Probe	
PHW17-SS	Micro pH Probe Waterproof Version	
PH37-SS	Piercing-Tip Micro pH Probe	
PHW37-SS	Piercing-Tip Micro pH Probe Waterproof Version	
PH47-SS	NMR Tube pH Probe	
PHW47-SS	NMR Tube pH Probe Waterproof Version	
PH57-SS	Heavy-duty Piercing-Tip pH Probe	
PHW57-SS	Heavy-duty Piercing-Tip pH Probe Waterproof Version	

Conductivity Probes

CDW97-KP5	General Purpose (Graphite) Conductivity Probe	
CDW97-K1	Drinking Water (Platinum) Conductivity Probe	
CDW97-K10	Salinity/Brackish Water (Platinum) Conductivity Probe	

Dissolved Oxygen (DO) Probe

DO50-GS	Dissolved Oxygen Probe	
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Oxidation Reduction Potential (ORP)/Redox Probe

ORP110-GS	Standard Oxidation Reduction Potential/Redox Probe	
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Ordering Information *continued*

Accessories

Maintenance Solutions

2964349 Probe Cleaning Solution for proteins, 500 mL bottle

2964449 Rinse Solution, non-ionic surfactant, 500 mL bottle

Kits and Replacement Items

2947600 pH Color Buffer Solution Kit, 500mL each (pH 4.01, pH 7.00, pH 10.00)

2973300 Conductivity Kit (100, 1000, 10,000 $\mu\text{S}/\text{cm}$ and 53 $\mu\text{S}/\text{cm}$), 500 mL

00130Q Carrying Case, soft-sided, Black

Conductivity Standards

2971849 Conductivity Standard Solution 100 $\mu\text{S}/\text{cm}$, 500 mL

1440049 Conductivity Standard Solution 1000 $\mu\text{S}/\text{cm}$, 500 mL

2972249 Conductivity Standard Solution 10,000 $\mu\text{S}/\text{cm}$, 500 mL

2714349 35 ppt Salinity Solution (53 $\mu\text{S}/\text{cm}$ conductivity), 500 mL

2971842 Conductivity Standard Solution 100 $\mu\text{S}/\text{cm}$, 100 mL

1440042 Conductivity Standard Solution 1000 $\mu\text{S}/\text{cm}$, 100 mL

2972242 Conductivity Standard Solution 10,000 $\mu\text{S}/\text{cm}$, 100 mL

2714342 35 ppt Salinity Solution (53 $\mu\text{S}/\text{cm}$ conductivity), 100 mL

pH Buffers

2283449 Buffer Solution, red, pH4.01, 500mL

2283549 Buffer Solution, yellow, pH 7.00, 500 mL

2283649 Buffer Solution, blue, pH 10.01, 500 mL

2226995 Buffer, pH 4.01, powder pillow, red, pkg./15

2227095 Buffer, pH 7.00, powder pillow, yellow, pkg./15

2227195 Buffer, pH10.01, powder pillow, blue, pkg./15





Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.